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Learning to Care

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From the SCS Chief

Soil and Water Conservation—A Learning Process

People learn about conservation in many places and in many ways. Conservation education happens every time a Soil Conservation Service conservationist talks to a landowner about solving an erosion problem. It happens when farmers affected by the conservation provisions of the 1985 Farm Bill get together for a planning session. It happens when an SCS conservationist meets with a citizens' group about a flooding problem, and it takes place in teacher workshops and in schools.

SCS staffs, in cooperation with soil and water conservation districts, frequently talk to school groups and help them solve erosion problems on schoolgrounds and develop outdoor classrooms to study soil, water, plants, and animals. SCS and districts help with teacher training programs and provide teachers with technical information and publications. Also helping are volunteers who donate their time and efforts to youth groups and civic organizations, spreading the word about conservation to a growing number of people of all ages.

The Intergovernmental Conference on Environmental Education sponsored by the United Nations in 1977 named three things needed for a good environmental education program: (1) it must be community based; (2) it must be interdisciplinary; and (3) it must be problem solving in its approach.

SCS efforts meet all of these requirements. Our network of field offices and our association with conservation districts keeps us in close contact with local community leaders and those who shape the attitudes of our future leaders. Our professional work force brings a wealth of diverse knowledge and understanding about natural resources to the community. The conservation planning process itself involves many technical disciplines, including those based in social and physical sciences and in mathematics, as well as other academic subjects. And our efforts with landowners and land users are clearly aimed at solving problems.

The study of soil, water, plants, and animals is of compelling interest not only for us as professionals, but also for millions of teachers and students. Let's make the most of this common interest. It's the best thing we can do now to help conserve and improve natural resources for the future.



Cover: Students at Houston Elementary School in Washington, D.C., plant a bradford pear tree on schoolgrounds as part of an ongoing conservation education program. (Photo by James Ware, soil conservation aide, SCS, Washington, D.C.)

Richard E. Lyng
Secretary of Agriculture

Wilson Scaling, Chief
Soil Conservation Service

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A Capital Way To Learn

In Washington, D.C., as in most big cities, open space is limited. Giving city students hands-on experience in caring for natural resources takes determination and creativity by teachers and school administrators. They are receiving help through the District of Columbia Soil and Water Conservation District (SWCD) and the Thomas L. Ayers Outdoor Classroom Program.

The SWCD and the local chapter of the Soil and Water Conservation Society sponsor the Ayers program. Through it schools can receive technical assistance and funding for supplies and plant materials. Volunteers from the city's Cooperative Extension Service and Recreation Department, the U.S. Department of the Interior's Geological Survey and National Park Service, the U.S. Department of Agriculture's Soil Conservation Service, and other Federal and city conservation agencies also help with outdoor learning projects and activities.

Paula Jones, district manager of the SWCD, organizes workshops for teachers at which conservationists from cooperating Federal and city agencies provide group instruction and work with teachers individually. Sylvia Shugrue, a retired science supervisor with the District's public schools and chairperson of the Ayers Outdoor Classroom Program, coordinates conservation education efforts among District schools.

Throughout the years, more than 50 elementary and high schools in Washington, D.C., have benefited from SCS, the SWCD, and other agencies helping with conservation education. For example, a 3-year plan developed for a site at the Francis Scott Key Elementary School by SCS through the SWCD involved students in building terraces and planting ground cover to control soil erosion. Students also developed a topographical map of the school site with assistance from James V. O'Connor, a geologist at the University of the District of Columbia.

At Green Elementary School, runoff from



Students at Anne Beers Elementary School in Washington, D.C., review map and conservation plan for schoolgrounds.

a steep hill had for years deposited silt and sand on the schoolyard and flooded the basement. SCS technicians planned the installation of drainage tile to carry away excess water, and students planted a thick cover of grass to reduce the rate of runoff.

McGogney Elementary School is planning a garden to attract certain species of butterflies. SCS is helping the school choose plant materials. Richard Brillantine, a landscape architect with the Soil Erosion Branch of the District Department of Conservation and Regulatory Affairs, is helping to design the garden which will be in the shape of a butterfly.

Plans are for Woodson Senior High School students to help restore the Chesapeake Bay. Woodson lies along Watts Branch, the largest tributary of the Anacostia River which enters the Potomac River and flows into the Chesapeake Bay.

With technical assistance from SCS, the SWCD will be repairing damaged streambanks along Watts Branch this spring to reduce the amount of sediment and other pollutants discharged into the stream system and eventually the Bay.

Students will observe state-of-the-art methods and materials used for reshaping banks, sodding slopes, and building retaining walls. Representatives from agencies involved in the project will speak at the school.

Plans are to involve students in surveying, monitoring water quality, making signs that explain the work being done, and developing a nature trail and exercise stations along the improved streambank.

SCS conservationists are evaluating the schoolgrounds of public schools throughout the District of Columbia at the request of the U.S. Department of Education. The information will be used in developing overall conservation plans for schools that need one.

Katharine N. Mergen,
retired education and relations specialist, SCS,
Washington, D.C.

Ernest L. Moody,
district conservationist, SCS, Washington, D.C.

Brooklyn Youth Start Garden

Yamileth Soto, an eighth grader from Colombia, South America, looked hot and tired as she stood near a mound of soil, shovel in hand, amidst the steel and concrete of Brooklyn, N.Y.

Yamileth, who has been in the United States for nearly 2 years, was one of about 60 students who spent 3 hours on a sunny Monday this past September filling planting boxes, pulling weeds, and planting trees in a vacant lot as part of a bilingual conservation education project of Brooklyn School District No. 32. Most of the students, like Soto, are Hispanic and speak little English.

"The project is good because I'm learning about planting," Soto said, using Program Coordinator Yvonne Ballester as an interpreter. "I like making the holes to plant the trees."

The school district conducts classes in gardening at the site each Monday in two 3-hour sessions. The students do all the work, but bilingual teachers are available to answer questions and offer guidance when

necessary. Thus far the students have planted 8 trees (spruce and junipers), 200 tulip bulbs, and enough ryegrass to cope with unwanted weeds. They have also completed most of the cleanup. This spring, they will paint the 51 planting boxes and plant vegetables and herbs.

Ballester and her coworkers in the district's Bilingual Department first got the idea for the garden about 3 years ago. Working through EMBERS (Environmental Management Through Bilingual Education Resources in Science), they designed a multipurpose project to complement classroom instruction in botany and earth science for Spanish-speaking students in grades six through eight and also to foster community pride. When finished, the project will include a flower and vegetable garden tended by the students, their parents, and other members of the community; a sitting area for adults; and a play

area for children. A mural, depicting themes chosen by the youngsters, will decorate a wall facing the garden.

The group began the project with \$480,000 in bilingual education aid from the U.S. Department of Education. Ballester turned to the U.S. Department of Agriculture (USDA) for help with the gardening. USDA put her in contact with Harvey Mack, district conservationist for USDA's Soil Conservation Service in New York City, N.Y. Mack held teacher workshops to familiarize the instructors with the hands-on approach to teaching the students gardening. He also provides technical assistance at the gardening sessions from time to time.

The site was obtained through the New York City Department of General Services. The city's Operation Green Thumb leased a 200- by 80-foot lot to the school district in Brooklyn's Bushwick section. Unfortunately, however, demolition contractors began using the site for dumping building debris before the garden could be started. The lot had to be cleared of debris on four separate occasions prior to the planting. According to science teacher Martin Shaffer, rubble was piled up to 4 feet high prior to one of the cleanups. After the fourth cleanup, the school district fenced in the lot and installed a locked gate.

Bilingual science teacher Bianca Tirrito, who regularly helps out with the gardening sessions, sums up the project's importance this way. "The students will improve their neighborhood," she said. "They will learn as they do the activities. Not only will they speak the words, they will see what they represent." Tirrito said the project will also encourage many students to love the land. "Many come from countries with strong agricultural bases," she added, "but respect for the land can quickly disappear within Brooklyn's concrete environment."

During the first year, a total of 125 students from five elementary, junior high, and intermediate schools have taken part in the project.

Sylvia T. Rainford,
public affairs specialist intern, SCS, Syracuse, N.Y.



Eighth grade students in Brooklyn, N.Y., spread soil used for gardening in a bilingual conservation education project. The project is designed to complement classroom instruction in botany and earth science and to foster community pride.

Scouts Dig to Earn Merit Badge

Twenty-two scouts dug, sorted, and replanted 250 thickspike wheatgrass plants into a new bed at the Soil Conservation Service's Rose Lake Plant Materials Center (PMC), near East Lansing, Mich. These hard working volunteers were boy scouts from Delta Mills Troop 111 in Lansing, Mich., sponsored by Great Lakes Bible College.

The troop needed a conservation project that would help some of the boys meet requirements for a soil conservation skill award and others an Environmental Science merit badge. The PMC needed thickspike wheatgrass to be replanted at a more suitable site where it could be irrigated if needed. The project benefited both.

The new plot established by the scouts a year ago has allowed plant specialists to observe thickspike wheatgrass and evaluate management needed for adequate

seed production. The plants are now being evaluated for wind erosion control on sand dunes and beaches along Lakes Michigan and Huron.

The service project took 3 hours to complete and has helped some of the scouts meet requirements for their soil conservation skill award or Environmental Science merit badge. The project also made them members of the "Earth Team," a national volunteer program sponsored by SCS for people who want to help protect the nation's soil resources from wind and water erosion.

Roger Howell,
public affairs specialist, SCS, East Lansing, Mich.



Scouts replant thickspike wheatgrass plants at the Rose Lake Plant Materials Center near East Lansing, Mich. SCS plant materials specialists observed the plantings to determine the level of management needed for adequate seed production.

On the Path at Scout Center

The Soil Conservation Service is helping to lay out an extensive network of trails at the new Girl Scout Outdoor Education Center, Briarcliff Manor, N.Y. The trails will complement environmental instruction for adult Girl Scout volunteers and staff from across the Nation.

The education center is located at the Edith Macy Conference Center on a wooded, 400-acre site about 35 miles north of New York City. The center offers training in environmental awareness, outdoor application of Girl Scout programs, and property management.

Work on trails at the center began this past fall with SCS technical assistance provided through the Westchester County Soil and Water Conservation District. James Cropper, SCS district conservationist for the county at the time, mapped about 2 miles of trails through areas of hickories, oaks, young maples, and young beeches and past rock formations, wetlands, a cave, and stone walls built during colonial times.

Cropper said he designed the trails to offer environmental diversity and accessibility to hikers. Later this year, once the trails are cleared and marked, the center plans to provide pamphlets for self-guided walks. Cropper said, "We are laying out the trails not only to take advantage of natural features of the site, but also to make it easier to walk."

SCS involvement with the center goes back to 1985. The Girl Scouts requested an SCS conservation plan to enhance and diversify the wildlife habitat. According to Cropper, there are few erosion problems on the property because it has reverted to a natural state.

Work at the center has also spawned a new relationship at the national level between SCS and the Girl Scouts of the U.S.A. The two parties have signed a memorandum of understanding, the first time the Girl Scouts have entered into a formal agreement with a Federal agency for assistance.

Sylvia T. Rainford,
public affairs specialist intern, SCS, Syracuse, N.Y.

Conservation Education Award Winners

The National Association of Conservation Districts (NACD) and the Deutz-Allis Corp. honored the winners in the 1987 National Conservation Education Awards Program at the NACD convention in Little Rock, Ark., January 29-February 4, 1988. NACD and Deutz-Allis cosponsor the annual contest to recognize teachers and soil and water conservation districts that have outstanding conservation education programs.

First place national teacher-of-the-year is shared by two biology teachers, Peggy Burt and Mary Porter, of John R. Rogers High School in Spokane, Wash. The team teachers involve their tenth grade students in a wide variety of conservation education activities.

In one activity, students test soil conditions on a 70-acre forested hillside owned by a local utility company and made available to the school through a low-cost, long-term lease. This and some other nearby areas are used for riding off-road vehicles, hiking, horseback riding, and illegally

dumping trash. Students test and compare soil compaction and moisture levels on areas made bare by heavy recreational use and areas protected by vegetation.

Other activities that Burt and Porter have involved their students in include monitoring water quality in local lakes that are becoming oxygen depleted because of excess nutrients, planning and helping to install plantings of shrubs and native flowers to provide food and cover for wildlife, hauling trash from their 70-acre study area, and studying the ecology of a salt water environment at Puget Sound.

Throughout the school year, students attend community meetings on environmental issues. At the end of the year, students write letters expressing their opinion about an environmental concern to someone in a position to do something about it and seek replies. Teachers say the students learn much from the responses they receive.

Second place national teacher-of-the-year is William E. Brown, a fifth grade teacher at Lost Creek Elementary School in Bridgeport, W. Va. Brown is an advisor to the Lost Creek Conservation Club, which involves some 60 students, grades 3 through 12, in a variety of environmental activities. In addition to recycling drives, community clean-up campaigns, and beautification projects, the club hosted over 800 students and adults at an annual Environmental Day. Other activities include construction of a nature trail, picnic benches, and a weather station.

First place national conservation district-of-the-year is the Ottawa Soil and Water Conservation District, Oak Harbor, Ohio. The district, in cooperation with local, State, and Federal agencies, sponsors the annual fifth grade conservation field day. At the Ottawa National Wildlife Refuge, students travel by wagon along a mile of dikes where experts at various stops discuss plant and animal life in the marsh.

The district's other educational activities include a clean water classic 5-mile run, a photo contest, and the establishment of a demonstration farm near the county fairgrounds. Winners of the first annual poster contest were honored during a tree-planting ceremony held in front of the new district office. The winners each received an evergreen tree for planting on their schoolgrounds.

Second place national district-of-the-year is the Jackson Soil and Water Conservation District in Medford, Oreg. The district sponsors a conservation education workshop that gives college credit to participating teachers. The goal of the workshop is to equip teachers with ideas and methods for teaching conservation in the schools. The last day of the workshop is set aside for the teachers to present projects and lesson plans that they developed at the workshop, giving all who participate many more ideas to take back to their classrooms. Other district activities include a master irrigation program and participation in a coordinated resource management planning effort along Bear Creek.



Students at Lost Creek Elementary School in Bridgeport, W. Va., welcome visitors to the school's nature trail and outdoor laboratory on Environmental Day.

Photo by Beth McClintock, file clerk in the Stay-in-School Program, SCS, Morgantown, W. Va.

The Villain is Mucky Mud

Top regional winners from each of NACD's seven regions have also been named. Outstanding ideas and projects from the top national and regional winners will be published in a pamphlet, "Great Ideas," that will be available to all conservation districts.

The designated lead teacher of the national first place team teachers, Mary Porter, received \$1,000 and an expense paid trip to the NACD convention in Little Rock, Ark. The national second place teacher received a cash award of \$500. The national first and second place districts each received a plaque at the NACD convention. In addition, the national first place district received funding to help cover the cost of sending a representative to the NACD convention. Each of the regional teacher and district winners received \$200 and an award plaque.

The conservation education awards program is open to all full-time classroom teachers in grades K-12 and to all conservation districts. Questions about the program should be addressed to the program coordinator, Malcolm Crooks, NACD, Box 297, Solebury, PA 18963; telephone (215) 297-5676.

Ronald G. Francis,
director of communications, National Association of
Conservation Districts, League City, Tex.

"I began life as Sunny Soil, and now I've become Mucky Mud—slimey, dirty mud." This is a line from "The Adventure of Mucky Mud," a skit written by Richard Mickowski, Dave Ludlow, Dick Askins, and Cindy Kranz, conservationists with the New Castle Conservation District, Newark, Del., and Marianne Hardesty, Soil Conservation Service soil conservationist. The skit has been presented to 150 4-H campers at the University of Delaware, 100 Warner Elementary School students, and hundreds of fellow conservationists at the Delaware Association of Conservation Districts' annual meeting. Mickowski said, "The idea for the script came from increasing problems with soil erosion and sedimentation—soil erosion creating gullies on farms, mud washing across sidewalks and streets, and sediment clogging and polluting creeks and ponds. The purpose of the skit is to tell how these problems can be controlled."

Ludlow plays the villain, Mucky Mud; Mickowski plays the farmer and the fisherman; and Frank Piorko, a conservationist with the district, plays the homeowner and Dr. Conservation. The skit stresses the problems that soil erosion can cause on farms, in neighborhoods, and in streams and ponds to young audiences ranging in age from 8 to 17 years old.

The skit is easy to follow because of the use of posters to illustrate the scenes and the readily recognizable costumes worn by the characters. The skit begins with Mucky Mud in a traditional villain's cape destroying a farm by stealing soil and creating gullies after a heavy rainfall. The farmer laments the loss of his most productive soil. Mucky Mud then becomes restless and goes to the city where he destroys a landowner's yard by washing the soil off unprotected areas and onto the sidewalk and his new car. At the lake, a popular

fishing spot, Mucky Mud fills the water with sediment and pollutants and kills the fish, frogs, and turtles. When he is finished wreaking havoc with the environment, Mucky Mud realizes he is not well liked and has no friends. He asks Dr. Conservation for help. Dr. Conservation puts a green cover of grass over Mucky Mud and changes him back into Sunny Soil.

Members of the audience participate in a question and answer session at the conclusion of the skit to test their understanding of the erosion problems and solutions presented. The skit and costumes are being revised and upgraded for future presentations.

Kim M. Berry,
clerk-typist in the Stay-in-School Program, SCS,
Washington, D.C.

Get the Picture?

High school students in Ninnekah, Okla., are learning that a picture is truly worth a thousand words.

Junior and senior students at Ninnekah High School are learning about soil and water conservation through photography.

Teacher Ed Cusato developed a course that combines conservation education with photography about 2 years ago. Cusato said that he was inspired to take on the project through his participation in a conservation education leadership program.

When Cusato told the Grady County Conservation District staff about his idea to combine conservation education with photography at the high school, they gave him a migrant to buy a 35mm camera and lens. Each semester students take and develop photos for the district to submit with articles to local newspapers. The

students are also planning to provide photos for the district staff to use in their county fair display.

One assignment was to photograph students and teachers involved in activities at an annual 1-day outdoor learning event held at a large pond. The 100 students attending learned to identify trees and plants common to the area and studied local wildlife and habitat needs. They also studied plant and animal life in the pond.

Photography students developed their black and white photographs in the school's darkroom, and the conservation district used them in news articles and one full-page and two half-page ads in local newspapers. The purpose of the ads was to encourage other schools to become more involved in conservation education activities.

Students in the combination conservation education and photography class visit farms and other sites to take photographs of soil erosion problems as well as good conservation treatment. Students interview

landowners and Soil Conservation Service and conservation district staff to gather information to complement the photos.

One student, Eric Brenner, said, "This is a fun course, and we've learned a lot about natural resources by taking photos of soil erosion and the conservation practices that control it."

Said Cusato, "The photography class has generated a lot of interest in conservation education. It's a way for students to have fun while learning about conserving natural resources."

Cusato was selected as Oklahoma's 1987 conservation teacher-of-the-year in the National Association of Conservation Districts/Deutz-Allis Conservation Education Awards Program.

F. Dwain Phillips,
public affairs specialist, SCS, Stillwater, Okla.



Students at Ninnekah High School in Oklahoma review photographs of conservation practices with Teacher Ed Cusato. Students visit farms and other sites to take photographs of soil erosion problems and good conservation treatment.

Traveling Trunks

Traveling trunks are providing Idaho teachers with a new source of support materials for teaching students about the State's natural resources.

The project is a cooperative effort of the Idaho Department of Parks and Recreation, Idaho Department of Fish and Game, and the U.S. Department of Agriculture's Forest Service and Soil Conservation Service.

Materials in the four metal trunks, which measure 29 inches by 14½ inches by 14 inches, can serve either as a starting point or a supplement to studies on outdoor recreation resources, forests, wildlife, and soils. Each trunk contains classroom visuals, audiovisual presentations, hands-on materials, and a teacher's guide on ways to use the materials.

The soils trunk contains the popular publication, "Conserving Soil"; Soil and Water Conservation Society educational cartoon booklets; an Idaho Soils Atlas; the 1985 National Wildlife Federation Wildlife Week kit, "Soil, We Can't Grow Without It"; a soil survey slide show; and containers of sand, silt, and clay. The teacher's guide includes information sheets on integrating the study of soil with other subjects. Material in the trunk focuses on soil formation and soil conservation. The trunk is sponsored by SCS, the Idaho Association of Soil Conservation Districts (IASCD), the Idaho Soil Conservation Commission, and the R.N. Irving Chapter of the Soil and Water Conservation Society.

When the trunks were ready to travel, the Idaho Department of Education put out a brochure that described their contents and told how teachers throughout the State could borrow them for a 2-week period. All four trunks were booked solid for this school year within a month after the brochures were distributed. The Department of Parks and Recreation is handling the scheduling.

The success of the traveling trunks has led to a spinoff project by the IASCD Education Committee. Idaho's 51 soil conservation districts are planning to prepare four thematic traveling boxes for use by teachers within their districts. The boxes will contain the same information as the trunks along with any additional information a conservation district wants to include.

The four themes will be soil, water, wildlife, and range or forestry to tie in with the sixth grade conservation poster contest conducted by most districts. Marcia Jaro, chairperson of the IASCD education committee said, "The traveling boxes are expected to help SCS and district employees more easily reach students and teachers with conservation information while they deal with the heavy conservation planning workload created by the conservation provisions of the 1985 Farm Bill."

Sharon Norris,
public affairs specialist, SCS, Boise, Idaho

Reaching Out to Scouts

Five Soil Conservation Service field offices and four resource conservation districts (RCD's) in California helped 1,000 girl scouts to earn their soil conservation patches last June, as they celebrated the Diamond Jubilee of the Girl Scouts of the U.S.A. More than 13,000 girls, ages 9 to 17, attended the roundup at Glen Helen Regional Park in San Bernardino County, Calif.

The SCS Apple Valley, Escondido, Lancaster, Redlands, and Riverside field offices and the Riverside-Corona, East Valley, West End, and Mohave Desert RCD's helped to design, set up, and run six learning stations to teach about soil formation, soil characteristics, soil erosion, and soil conservation.

Groups of 12 to 15 girls spent 10 minutes at each station. At the first station, they learned what SCS is and does and about RCD's.

At another station, they learned how topsoil forms from decaying plants and animals. They also learned how important this layer of soil is to producing crops and supporting other vegetation and learned ways to protect the soil from erosion. To reinforce what they learned about soil formation, participants glued leaves and twigs in various stages of decomposing into soil onto cards and laminated them for use as bookmarks.

At other stations, SCS and RCD staff talked about the formation of mountains and other land forms and the different types of soil that occur on the landscape. At soil trays, the girl scouts felt the different textured sand, silt, and clay. They also learned how certain characteristics make a soil better suited for growing crops, supporting buildings, or other uses.

To receive their soil conservation certificates and patches, the girl scouts had to pass a written test on what they had learned.

Patrick J. Burke,
information specialist, SCS, Escondido, Calif.

Conservation Education, Inc., A Growing Concern

In 1954, three local conservationists in Manitowoc County, Wis., called a meeting of all nature lovers. Thirty-three residents attended. They formed a nonprofit organization that has since helped provide training in conservation education to nearly 1,500 teachers. And these teachers have gone on to teach thousands of students to know and understand the land and the living things on it.

The organization, Conservation Education, Inc., (CEI), sponsors an annual summer workshop to teach teachers new ways to introduce their students to the soil, water, wildlife, and forest. Teachers can attend this 4-day workshop for a \$50 enrollment fee that covers food, materials, and lodging in dormitories or cabins. College or continuing education credit is available.

The curriculum covers land and water ecosystems, natural succession, land capabilities, land use decision making, and woodlot management. Classroom sessions—usually taught by two resource professionals—are followed with field trips to a State forest, woodland dunes, a bog, a farm, and a marsh.

George Gottier, district conservationist with the Soil Conservation Service, and Tom Ward, Manitowoc County conservationist, teach soils, soil conservation, and land use planning. In the classroom, Gottier and Ward introduce the teachers to SCS publications, such as "Conserving Soil" and soil surveys, that can be used as teaching tools. They discuss soil capabilities and land use concepts and do some quick experiments involving soil texture, pore space, capillary action, and water infiltration. Then workshop participants go out and conduct four onsite analyses to determine suitable land uses. The next stop is a farm where they see demonstrations of farming practices that protect

water quality, such as proper animal waste management and erosion control practices.

"Excellent" and "superb" are used over and over again by the students in their evaluations of the workshop. Most find that the educational games, easy experiments, helpful materials, and field trip ideas are effective teaching tools that they are able to use with their own students.

In addition to the teachers' workshop, CEI has raised money for the purchase of a 4,100-acre marsh, built a nature study center, erected a fire and lookout tower, and developed a self-guided conservation tour of Manitowoc County.

Renae E. Anderson,
public affairs specialist, SCS, Madison, Wis.

Wyoming's Missing Link

Rangeland makes up 80 percent of the State of Wyoming. To build better understanding and appreciation of this vast rangeland resource, State resource conservation officials wanted to help conservation organizations, schools, youth groups, and others establish range judging contests, develop range lesson plans, organize range camps, and initiate other learning activities. To help them, State officials wanted to develop a handy reference guide for teachers and group leaders to use in developing rangeland programs and activities. The Wyoming Range and Land Management manual is the missing link in the chain that connects the idea of conservation education to its actual implementation.

The manual was the combined effort of high school teachers in Wyoming; the University of Wyoming; the Bureau of Land Management; the Society for Range Management; the Soil and Water Conservation Society; the U.S. Department of Agriculture's Extension Service, Farmers Home Administration, and Soil Conservation Service; and many other organizations.

Wyoming Governor Mike Sullivan said, "This handbook is the product of much hard work by many agencies and individuals who are committed to sound range management in Wyoming . . . In the hands of dedicated stewards, I believe that this publication will be one of the best tools available for accomplishing our shared management goals."

The manual is in loose-leaf form to make it easier to insert additional material. For example, a new section on water and range hydrology is already being planned. The manual now includes sections on plants, soils, wildlife, range sites, range condition, range utilization, ranch planning, ranch economics, and range judging contests and a glossary.

The manual does a good job of explaining the cycle of rangeland management. It explains each subject, enabling the reader to understand its significance and see how aspects of rangeland management are interrelated. For example, plants protect the soil, livestock graze the plants, and range condition depends on how the vegetation and livestock are managed.

For more information about the manual contact the Wyoming SCS State Office, Federal Building, 100 East B Street, Casper, WY 82601.

Kim M. Berry,
clerk-typist, Stay-in-School Program, SCS,
Washington, D.C.

Students to Learn More About Soil

Public school students in California may be learning much more about soil if the effort under the leadership of the California Association of Resource Conservation Districts (CARCD) becomes part of the State's guidelines.

The California Department of Education is revising its "Science Framework Addendum," a curriculum guide that addresses what should be taught in the classroom. Education Department officials recognized a need for more information about soil resources and contacted the State conservation association for assistance, said Ernest White, CARCD president.

"Conservation education is one of my top priorities," White said. "We have to make our young people aware of soil limitations and capabilities, particularly in California, which is the most populated and urbanizing State, as well as the biggest agricultural crop producer."

The loss of prime farmland to urbanization is a critical issue in California, but many residents aren't aware that soil information is available for consideration in resolving land use issues, he said.

CARCD assembled representatives of the Soil and Water Conservation Society, the Alliance for Environmental Education, the Soil Conservation Service, and the Riverside-Corona Resource Conservation District—a leader in conservation education in California—in Riverside January 4-8. The group critiqued the existing "Science Framework Addendum" and wrote a new science oriented chapter about soils.

Shelli Lamb, manager of the Riverside-Corona RCD, said that the group first determined the level of knowledge that students should possess on graduation from high school in order to make good land use decisions. The three knowledge levels decided upon are: (1) an attitude of commitment to conserve soil in order to maintain a quality environment and economic prosperity, (2) a basic knowledge of soil

concepts, and (3) skills necessary to apply basic soil conservation measures and to make informed land use decisions.

The group developed curriculum statements and suggested learning activities for grade levels K-3, 3-6, 6-9, and 9-12. A State Department of Education Committee will complete the revision of the Science Framework Addendum by the end of 1988.

The effort in California could have national implications, noted Tom Sachse, manager of the Math/Science unit of the State Department of Education. Textbook publishers strictly adhere to the Science Framework Plan in developing books for California schools. Since the market for texts is so large in California, many of these same books are marketed in other States, Sachse said.

Daniel Himsworth,
public affairs specialist, SCS, Davis, Calif.

Field Trip, Rain—A Perfect Match

On most field trips, teachers hope for clear skies. But, when Northern Virginia elementary and high school teachers took a field trip this summer and met with torrential rains, conditions couldn't have been better.

Aside from getting damp while dashing for the tour bus, the teachers benefited from watching erosion and sediment control practices at work at a construction site during an unexpected rainfall.

The heavy rains showed the controls that were working effectively and those that were not. Clear water running through road ditches, silt traps, and check dams showed where the soil was staying in place. Water clouded by sediment showed where the soil was moving off the construction site.

Eroding soil eventually enters local streams and rivers, causing a wide range of environmental problems.

"The pollution problems in the Chesapeake Bay demonstrate the damage that sediment in runoff can cause," said Bernard Parsons, director of the course for teachers sponsored by the Virginia Resource Use Education Council. Parsons said that farmers and citizens alike need to be made aware of resource conservation problems in their communities, particularly soil erosion. "Society needs to keep soil erosion to acceptable limits to protect the Bay as well as the land," said Parsons.

The 27 teachers on the field trip were participating in the Council's 3-week summer course on renewable natural resources at George Mason University. According to Parsons, instruction focuses on soil conservation because all other renewable resources such as plants and animals depend on the soil.

The Northern Virginia Soil and Water Conservation District, in cooperation with the Soil Conservation Service, conducted the tour for teachers on soil erosion

problems and the conservation practices used to solve them in Fairfax County.

Teachers participating in the course earn four graduate-level credits.

The Virginia Resource Use Education Council estimates that the 2,800 teachers who have taken the course over the past 30 years have reached 1.5 million students with a strong conservation message.

Thirty teachers from all over Virginia are selected to receive scholarships to the course every year. The course is scheduled to run again this July.

Adapted from an article by Anna K. Boller in the November 1987 issue of *Idea*, the newsletter of the Northern Virginia Soil and Water Conservation District, Fairfax, Va.

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Send present mailing label and
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Soil Conservation Service
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SCS Recognizes Hispanic Heritage Week

"I was looking for a job during my senior year of high school and started in the Soil Conservation Service as a clerk-typist, GS-1, in 1979 through the Federal Stay-in-School program," said Malia Oliver. "I did not know what SCS was or what it did. After I learned more about SCS, I was inspired to learn more about natural resources. I am now a GS-9 soil conservationist in Los Banos, Calif."

Oliver was one of three speakers at the SCS symposium in recognition of the National Hispanic Heritage Week held at the U.S. Department of Agriculture (USDA) in Washington, D.C., last September. Olivia Garcia and Juan Gauna told similar stories of how SCS and the student programs have helped them.

Through the Junior Fellowship program, offered to high school seniors in the upper 10 percent of their graduating class who

plan to attend college, and the Cooperative Education program (CO-OP), offered to students who work intermittent periods between schooling, Oliver was able to receive training in the field. She majored in agronomy at the California State University, Fresno. After graduation she was placed as a soil conservationist.

Said Oliver, "SCS needs to go to the high schools to attract young Hispanics because many drop out before they know that these programs are available."

Garcia is a fiscal clerk at the SCS South National Technical Center in Fort Worth, Tex. She is a senior majoring in economics and finance at the Texas Western College. She too was able to take advantage of the Stay-in-School program, offered to students who meet economic requirements, and used the money to finance her education. The advice she would give young Hispanics is "complete your education, set goals, and work to achieve them."

Gauna, SCS district conservationist in Monroe, Mich., is also the Hispanic Employment Program manager in Michigan. He started his SCS career in an intermittent work program based on the need of the agency. Gauna later received a student trainee position. He studied civil engineering and later changed to soil science. Upon graduation in 1983 he began working as a soil conservationist. "I think we need to reach kids as young as junior high school age," said Gauna. "That would be one way to help more Hispanics enter the workforce."

Sue Trevino, SCS National Headquarters Hispanic Employment Program Manager and coordinator of the symposium, said, "Hispanics are the most under represented minority in the work force." She defined Hispanics as "people of Mexican, Spanish American, Puerto Rican, Cuban, Central or South American, or Spanish culture or origin regardless of color." Regarding National Hispanic Heritage Week, Trevino said, "It is an opportunity for all people to celebrate and recognize the varied contributions Hispanics have made and continue to make in this country."

The three guest speakers as well as many Hispanic organization leaders in USDA feel that recruitment should begin at least at the high school level. The goal is to show Hispanic youths the employment opportunities that exist to help them to finance their education and possibly lead to permanent positions with USDA.

Kim M. Berry,
clerk-typist in the Stay-in-School Program, SCS,
Washington, D.C.



HISPANIC EMPLOYMENT PROGRAM